CLAIMS

What is claimed is:

1. A tissue cutting device, comprising:

a probe having a length generally defining a probe axis, the probe defining at least one cutting loop exit at an exit angle relative to the probe axis, the exit being at a distal region of the probe;

a cutting loop with shape memory having a preconfigured shape, the cutting loop being selectively in one of a penetrating configuration configured for the cutting device to penetrate tissue and a cutting configuration configured for the cutting loop to cut tissue, the cutting loop being generally within a profile of the probe in the penetrating configuration, and when in the cutting configuration, the cutting loop extends through the cutting loop exit and generally returns to the preconfigured shape, the cutting loop being at a cutting angle relative to the probe axis generally defined by the exit angle; and

a cutting loop securing mechanism configured to selectively secure the cutting loop in the penetrating configuration and to release the cutting loop into the cutting configuration, the cutting loop securing mechanism being one of slidably disposed relative to the probe and a groove defined in the probe proximal to the cutting loop exit.

2. The device of claim 1, wherein the cutting loop securing mechanism extends from a distal end of the probe and is at least partially slidably retractable into the probe.

3. The device of claim 2, wherein the cutting loop holder is Y-shaped.

4. The device of claim 1, wherein the cutting loop holder is a cover slidably disposed over probe and configured to secure the cutting loop between the loop cover and the probe for the penetrating configuration.

5. The device of claim 1, wherein the cutting loop holder is the groove defined in the probe proximal to the cutting loop exit.

6. The device of claim 1, wherein the probe includes at least one cutting loop channel terminating at the cutting loop exit.

7. The device of claim 1, wherein the size of the cutting loop is adjustable by retracting or extending the cutting loop into and out of the probe when the cutting loop is in a cutting configuration.

8. The device of claim 1, wherein the probe defines two cutting loop exits through which the cutting loop extends.

9. The device of claim 1, wherein the cutting loop exit is selectively positionable about the probe to facilitate adjusting a width of the cutting loop.

10. The device of claim 1, wherein the cutting loop exit is selectively positionable to adjust the exit angle between the cutting loop exit and the probe.

11. The device of claim 1, wherein at least one edge of the cutting loop is at least one of sharpened and serrated.

12. The device of claim 1, further comprising a tissue penetrator at a distal end of the probe, the tissue penetrator being coupled to an energy source for supplying energy to the tissue penetrator to facilitate tissue penetration.

13. The device of claim 13, wherein the tissue penetrator is partially insulated to selectively expose the tissue to the energy.

14. The device of claim 1, wherein the probe defines an opening at a distal end of the probe through which the cutting loop may selectively extend for the cutting configuration and retract for the penetrating configuration.

15. The device of claim 1, further comprising a loop cover disposed slidably over probe, the loop cover configured to secure the cutting loop between the loop cover and the probe for the penetrating configuration and to release the cutting loop into its preconfigured shape for the penetrating configuration.

16. The device of claim 1, wherein the cutting loop is coupled to an energy source configured to supply energy to the cutting loop to facilitate cutting of tissue by the cutting loop.

17. The device of claim 16, wherein the energy source is selected from at least one of a radio frequency, laser, water jet, air abrasion, ultrasonic, oscillation along a predetermined distance, direction and/or frequency, oscillation along a variable distance, direction and/or frequency.

18. The device of claim 16, wherein the cutting loop is partially insulated to selectively expose the tissue to the energy.

19. The device of claim 1, further comprising an imaging device generally housed in the probe.

20. The device of claim 1, further comprising a probe locating mechanism housed in the probe, the probe locating mechanism facilitates in determining the location of at least one of the probe and the cutting loop within the tissue from external to the tissue, the probe locating mechanism being one of a light, a radiologic marker, and an ultrasound marker.

21. The device of claim 1, further comprising a tissue collector to collect tissue cut by the cutting loop.

22. The device of claim 1, further comprising a tissue marking mechanism to mark the tissue cut by the cutting loop.

23. A method for cutting targeted tissue, comprising:

positioning a tissue cutting device adjacent to the targeted tissue, such that a distal end of a probe of the tissue cutting device is distal to the targeted tissue, the probe having a length generally defining a probe axis and the probe defining at least one cutting loop exit at an exit angle relative to the probe axis, the exit being at a distal region of the probe;

releasing a cutting loop of the tissue cutting device from being generally parallel to the probe axis in a penetrating configuration to a cutting configuration, the cutting loop having shape memory with a preconfigured shape such that upon releasing the cutting loop, the cutting loop generally returns to the preconfigured shape and generally extends at a cutting angle relative to the probe axis defined by the exit angle; and

retracting the tissue cutting device so that the cutting loop in the cutting configuration cuts the targeted tissue.

24. The tissue cutting method of claim 23, further comprising returning the cutting loop to the penetrating configuration when the cutting loop is proximal to the targeted tissue.

25. The tissue cutting method of claim 23, further comprising applying an energy to the cutting loop to facilitate cutting of tissue during the retracting.

26. The tissue cutting method of claim 25, wherein the energy is selected from the group consisting of radio frequency energy, laser, water jet, air abrasion, ultrasonic, and oscillation.

27. The tissue cutting method of claim 25, wherein the cutting loop is partially insulated to selectively expose the tissue to the energy being applied.

28. The tissue cutting method of claim 23, wherein the positioning includes applying an energy to a tissue penetrator at a distal end of the probe to facilitate tissue penetration.

29. The tissue cutting method of claim 28, wherein the tissue penetrator is partially insulated to selectively expose the tissue to the energy being applied.

30. The tissue cutting method of claim 23, further comprising scanning the tissue with an imaging device and determining the targeted tissue to be cut.

31. The tissue cutting method of claim 30, wherein the imaging device is housed by the probe.

32. The tissue cutting method of claim 23, further comprising adjusting the size of the cutting loop to generally encircle the targeted tissue.

33. The tissue cutting method of claim 23, wherein the retracting is such that a tissue collector follows the path of the cutting loop to collect the cut tissue.

34. The tissue cutting method of claim 23, further comprising marking the cut tissue using a tissue marking mechanism during the retracting.